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The nucleus of Tradescantia appears to have a structure like protoplasm, but much more compact.

Bending movements of Oscillaria are accompanied by wave-like movements of particles in the cells; and the longitudinal movements by a streaming of particles on the surface in a direction opposite to that of the motion of the filament. These particles pass off into the water when they reach the end of the filament.

Ultramicroscopic organisms in figure-of-8 forms, and colonies in form like certain flagellates, similar to the organisms already described by RAEHLMANN, were found in every preparation.

Protoplasmic movements have been seen in all organisms investigated, and the ordinary rotation and streaming is by no means the simple flow it seems to be, but is probably initiated by a complex motion of the ultramicroscopic particles (ultramicrons) of the protoplasm, whose structure seems identical with that of colloidal solutions as determined by ZSIGMONDY with the instrument. The first movement, indeed, may be what has long been known as the Brownian movement, once so carefully distinguished from the "vital" ones as "purely physical."

In plasmolysis GAIDUKOV has seen the protoplasmic particles move from the periphery toward the center of the cell, changing shape at the same time from round to vermicular, while in the chloroplast simultaneously the vermicular chlorophyll particles creep out upon the surface. In Flagellatae there is a vigorous movement of particles in the region of the cilia and below the mouth opening, before the gross movements begin.

Whereas in chlorophyllose cells the cell wall is optically empty (*leer*), enabling one to see the cell contents clearly, the wall of bacteria and fungi has so complex a structure that nothing can be seen through it. Yet the purple bacteria which also work photosynthesis have a wall optically empty. These facts are believed to be related to the necessity for transparence to light in photosynthetic cells.—C. R. B.

Araucarieae.—A. C. SEWARD and SIBILLE O. FORD have published the results of a study of the Araucarieae.[6] The two living genera representing the group, Agathis and Araucaria, have long stood somewhat stiffly apart from other Coniferales, not only on account of the known facts in reference to them, but chiefly, perhaps, on account of lack of knowledge. The authors have marshalled our knowledge of extinct and living forms in this memoir; and however opinions may differ as to their conclusions, there can be only one opinion as to the value of the work. The subject is presented under the following captions: distribution, generic diagnosis, seedlings, stem anatomy, roots, leaves, leaf-traces, reproductive shoots, fossil Araucarieae, and phylogenetic considerations and conclusion. The details are too numerous to be included in a review, but the conclusions are too important to be passed over lightly.

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[6] SEWARD, A. C. and FORD, SIBILLE, O., The Araucarieae, recent and extinct Phil. Trans. Roy. Soc. London. B. **198** :305–411. *pls. 23–24. figs. 28.* 1906.

In general, the memoir is a contention that the recent brilliant work which has knit together cycads and Filicales has developed the too sweeping conclusion that all gymnosperms have the same phylogenetic connection; that the old view suggesting a connection between conifers and lycopods deserves more attention than it has been receiving; and that at least the Araucarieae strongly suggest a lycopod origin. It is urged upon paleobotanical evidence that the Araucarieae are the most primitive of Coniferales, certainly more primitive than the Abietineae; and that this testimony from history is supported by numerous evidences of relatively primitive structures still exhibited by Agathis and Araucaria. The difficult question of the Cordaitales, which seem to combine characters of Cycadales and Coniferales and so necessitate a common phylogeny, is disposed of by minimizing their resemblances to the latter, at least to the Araucarieae. It must be remarked that the authors repeatedly emphasize the fact that they are dealing only with the Araucarieae, and that it does not affect their main contention whether the other Coniferales are related to a filicinean ancestry through the Cordaitales or not. In developing the differences between the Araucarieae and other Coniferales, they have been so impressed by their importance that they have suggested a group *Araucariales*, coordinate with Coniferales, Cycadales, etc. For this group, at least, they claim a lycopod ancestry, through some such form as Lepidocarpon, emphasizing the seed-like sporangia recently described by SCOTT in that genus.

The authors are to be congratulated upon a very fair statement of their case, a statement which dodges none of the difficulties, and which really does not claim very much more than that an almost abandoned hypothesis must not be neglected.

A very interesting appendix to this memoir may be obtained by reading the report[7] of two recent meetings of the Linnean Society, at which various views as to the origin of gymnosperms were presented and combated by English students of the group.—J. M. C.

Items of taxonomic interest.—N. L. BRITTON (Bull. N. Y. Bot. Gard. **4**:115–127, 137–143. 1906) describes new species of Bahama plants under Coccolobis, Caesalpinia, Canavalia, Hibiscus, Heliotropium (2), Lantana (2), Cestrum, Stemmodontia, Anastraphia, Marsilea, Dondia, Cassia, Maytenus, Myroxylon, Opuntia, Limnanthemum, Metastelma, Aster.—W. H. BLANCHARD (Torreya **6**:147–149. 1906) has described 2 new species of Rubus (dewberries) from New England.—H. D. HOUSE (*idem* 150) has described a new Convolvulus from Georgia.—H. A. GLEASON (Bull. Torr. Bot. Club **33**:387–396. 1906) has revised the pedunculate species of Trillium, defining 19 species, 3 of which are new.—H. D. HOUSE (Rhodora **8**:117–122. 1906) has described the violets and violet hybrids of the District of Columbia and vicinity, recognizing 26 species, and describing 8 new hybrids.—M. L. FERNALD (*idem* 126–130) has described new species of Cyperus (2) and Eleocharis from Eastern North America.

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[7] New Phytol. **5**:68–76, 141–148. 1906.